REMARKS

Reconsideration of this application, as presently amended, is respectfully requested. Claims 1-15 are pending in the present application. Claims 1-4 and 12-15 stand rejected. Claims 5-11 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections – 35 U.S.C. §102

Claims 1-4 and 12-15 are rejected under 35 U.S.C. §102(a) as being anticipated by **Bruning** (USP 6,339,314). For the reasons set forth in detail below, this rejection is respectfully traversed.

Initially, it is noted that independent claims 1, 3 and 12-15 have been amended to clarify the invention by changing "a no-load state" to – a no-load state or a light-load state--. This change is supported by the present specification, e.g., on page 2, lines 20-24; page 20, lines 5-17; and page 21, lines 20-29, which describe a standby state that would include a no-load or light-load state.

In accordance with an embodiment of the present invention, a power supply to a transformer is started when an external voltage is applied to the output side of a current-to-voltage conversion circuit, so as to start the current-to-voltage conversion circuit having the output side that is in a no-load (or light-load) state, as currently recited in independent claims 1 and 3.

In accordance with another embodiment of the present invention, a current-to-voltage conversion circuit is controlled to a deactivated state when the output side is in the no-load (or light-load) state, and controlled to an active state when an external voltage is applied to the output side, as currently recited in independent claims 12 and 13.

In accordance with yet another embodiment of the present invention, the no-load (or light-load) state of the output side of the current-to-voltage conversion circuit is detected, and a supply of power to the transformer is stopped when the no-load (or light-load) state is detected, as currently recited in independent claims 14 and 15.

In accordance with the present invention, it is possible to reduce the power consumption of the current-to-voltage conversion circuit to zero, that is, reduce the standby power to zero, when the electronic apparatus is in the standby state or stopped state.

In addition, it is possible to start the power supply to the transformer in the state where the output side of the current-to-voltage conversion circuit is in the no-load (or light-load) state or the current-to-voltage conversion circuit is in the deactivated state, by applying the external voltage to the output side of the current-to-voltage conversion circuit.

Furthermore, by applying the present invention to an AC adapter, for example, it is possible to prevent a short circuit even if metal terminals of the connector of the AC adapter are exposed because the power supply to the transformer can be stopped completely.

Bruning discloses a battery charger circuit 10 that controls the supply of current to reduce power dissipation during standby. The battery charger circuit 10 generally includes input terminals 12, 14, output terminals 16, 18, a transformer 20, a triggerable electronic switch 22, a

sensing element 24, a load or current sensing circuit 26, a triggering circuit 28, and a switching element 30 (see Fig. 1 and col. 3, lines 12-20).

In operation, the load detection circuit 26 of the battery charger circuit 10 senses or measures the magnitude of the value of the primary current flowing through the sensing element 24 at predetermined times or intervals (i.e., 0.01% duty cycle) to detect whether a load is connected to the output terminals 16, 18 of the battery charging circuit 10. Thus, according to **Bruning**, the load detection circuit 26 senses the magnitude of the value of the current flowing to ***a primary winding*** of the transformer (see, e.g., col. 2, lines 43-45) to detect whether there is a load connected to the battery charging circuit.

Accordingly, **Bruning** discloses detecting the no-load state of the secondary side from the current of the primary side, and automatically turning ON/OFF a main switch on the primary side so as to reduce the power consumption after charging is completed. A load monitoring circuit periodically monitors the load, and the main switch is turned ON if the connection to the load is detected.

However, **Bruning** does not disclose or suggest starting a power supply to the transformer when an external voltage is applied to the output side of the current-to-voltage conversion circuit, as recited in independent claims 1 and 3 (see comparator COMP 12 and power ON/OFF circuit 6 shown in Fig. 4 and corresponding description in specification). Unlike the claimed invention, **Bruning** teaches detecting a load current by a current comparator, which would correspond to the comparator COMP 11 shown in Fig. 4 of the present application, and

does not teach anything that would correspond to the comparator COMP 12 shown in Fig. 4 of the present application.

With respect to independent claims 12 and 13, **Bruning** does not disclose or suggest applying an external voltage to the output side of the current-to-voltage conversion circuit in the deactivated state to control the output side to the active state.

Furthermore, with respect to independent claims 14 and 15, **Bruning** does not disclose or suggest stopping a supply of power to the transformer when the output side of the current-to-voltage conversion circuit is in the no-load or light-load state.

In order to restart the power supply to the transformer in **Bruning**, it is necessary to continue supplying power to the load because the restart is made by the load current. However, in accordance with the present invention, it is simply necessary to apply the external voltage to the output side of the current-to-voltage conversion circuit in order to restart the power supply to the transformer, and a more stable start procedure can be realized.

In addition, when the power to the load is OFF the power supply capability of **Bruning** is unstable, and **Bruning** is only applicable between the AC power supply line and the load which receives the AC power supply and is started by the AC power supply.

In an apparatus which is battery driven, regardless of whether the apparatus is operating or is in the standby (or stopped) state, a stable external DC power supply is required. However, in **Bruning**, it is necessary to connect and start a pseudo load (which is unrelated to the operation of the apparatus), and wait until the power supply stabilizes before the drive can be switched from the battery-drive to the external power drive. On the other hand, the present invention can

stop and start the power supply to the transformer in a manner unlike **Bruning**, and realize low power consumption of the current-to-voltage conversion.

In view of the above amendments and remarks, it is respectfully submitted that each of claims 1-4 and 12-15 patentably distinguish over the **Bruning** reference. Accordingly, reconsideration and withdrawal of the rejection under §102 are respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, it is submitted that all pending claims are in condition for allowance. A favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application, the Examiner is invited to contact the undersigned attorney at the telephone number indicated below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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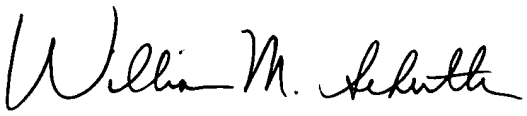

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